

Defining Drought in Montana, Part 2

MEETING MINUTES

The Monitoring Sub-Committee (MSC) of the Governors Drought and Water Supply Advisory Committee (DWSAC) met again on June 28, 2017 from 1pm – 3pm to discuss how to define drought in Montana. The MSC is made up of experts from the National Weather Service (NWS), United States Geological Survey (USGS), the Natural Resources and Conservation Service (NRCS), the Farm Service Agency (FSA), the National Agricultural Statistics Service (NASS), the Bureau of Reclamation (BOR), the Montana Bureau of Mines and Geology (MBMG), the Montana State Library, the Montana Climate Office, and the Department of Natural Resources and Conservation (DNRC). The meeting involved a presentation from Troy Blandford at the State Library on the progress made since the last meeting on this topic (see “Defining Drought for Montana” at www.drought.mt.gov for meeting minutes). Another presentation was given by Zach Holden from the University of Montana and US Forest Service which covered his work on creating an automated platform for assessing and predicting wildfire that may be a good model for automating drought assessment as well. A final presentation was made by Jamie Ellis clarifying how the DNRC can assist in this multi-player, multi-faceted effort. The remainder of the time was spent on a facilitated discussion the progress to date, what is still missing, and the steps moving forward to define drought for the geographically complex and climatically diverse state of Montana.

1. State Library Presentation

Troy Blandford

Troy showed the interface he created using the drought indicator data sets identified in the last “Defining Drought” discussion and a GIS format that allows all the data layers to be shown consistently on the same map of Montana with its counties labeled. The map and data layers could be something made publicly available down the line.

Troy’s presentation raised questions about what the indices of drought actually are and some discussion was had on which were the most relevant. There may be some that are redundant and some that are missing.

2. UM/Forest Service Presentation

Zach Holden

Zach provided an overview of the product he created called Topofire (http://topofire.dbs.umt.edu/topofire_v3/). The product pulls various data relevant to predicting wildfire together for the entire country and makes certain reports available. Zach’s

work resulted in an ensemble product that pulls data to display a variety of different products in a harmonized way, not entirely unlike what Troy began doing at the state level for drought,. Because Topofire is designed for wildfire prediction, data sources such as ground fuel moisture, fire activity, fire severity, daily weather, precipitation and snow, vegetation and pine beetle are presented. The information gathered updates automatically and allows for rapid and accurate assessment of wildfire conditions nationwide. What is even more helpful is that many of the data sets that go into making Topofire possible are relevant to drought assessment. There is real potential to explore in terms of using Topofire as a model for Montana's drought assessment.

3. DNRC

Jamie Ellis

Jamie gave a quick presentation on his work as a technology liaison with a background in water rights, GIS, and systems manager. He explained how he can document the process of developing a multi-faceted product bridging multiple agencies. He showed us how he documents processes, documents roles and outcomes, and generally helps a process stay on track.

4. Discussion on progress to date and what is needed

The group engaged in a discussion of where we are now. They agreed more information is needed on what the drivers of drought are in order to have a complete catalogue to then determine which information provider is the best to use for each driver. Part and parcel of the drivers of drought are the different forms of drought. In order to build an accurate classification scheme, it may be necessary to classify the type of drought impacts. Would a classification scheme be needed for each: agricultural, hydrologic, meteorologic, socioeconomic and ecologic?

A question about the end product became an important question to answer. What will the information ultimately be used to do? The answer for DNRC staff is (1) recommendations to the Governor's Drought and Water Supply Advisory Committee about what needs to happen and (2) documentation of conditions to provide to the US Drought Monitor.

The Montana drought survey will provide an important check on where drought impacts are being seen and should be widely distributed. In addition, this data will help fill the void of field reporting so sorely lacking in the current process. This should be looked at with each assessment in addition to the data sets available.

In terms of a classification scheme, some way to account for different look back periods needs to be incorporated better. The next step would be to run the classification scheme mocked up so far to see where it yields errors and then tweak it by weighting different data sets differently until a more accurate picture can be offered. Terrestrial and surface water data sources need to

be better developed and included. Thresholds of when you move from one category to the next. In addition, a threshold for when a Governor EO is needed should be identified so that the process is consistent and as objective and reliable as possible.

5. Next Steps

- ID key variables to include in assessment of drought.
- Refine current process.
- Link the stakeholders to this conversation more formally with Jamie Ellis.
- Jamie can put together project documentation and help keep the effort moving forward.
- Demonstrate the validity of the mocked up classification scheme and work to correct it where needed.
 - Already we know we need surface and terrestrial ways to assess moisture. Kathy, Lucas and the Montana Climate Office have ideas on this.
- Keep David Ketchum in the loop.
- Keep different types of drought in mind and identify whether a set of different indices for each one is necessary.
- Establish a timeframe for the discussion so it is robust and consistent.
- Get the survey up and running (CHECK!)
- Document communication process with the US Drought Monitor.
 - How often: weekly, ideally by Tuesday of the week get a report to the USDM of ____ data.